

CLAIMS

1. A detector comprising:
a transistor sensitive to electromagnetic energy and
means for biasing said transistor whereby an output thereof is responsive to said electromagnetic energy.
2. The invention of Claim 1 wherein said electromagnetic radiation is light.
3. The invention of Claim 2 wherein said light is in the visible portion of the electromagnetic spectrum.
4. The invention of Claim 1 wherein said transistor has a body, a gate terminal, a source terminal and a drain terminal.
5. The invention of Claim 4 wherein the body of said transistor is configured to float.
6. The invention of Claim 5 wherein said transistor is a complementary metal-oxide semiconductor transistor.
7. The invention of Claim 6 wherein said transistor is an n-channel complementary metal-oxide semiconductor transistor.
8. The invention of Claim 7 wherein said the transistor is formed on top of an insulating substrate which is transparent to visible light.

9. An imager comprising:

first means for detecting input illumination, said first means including an array of detectors, each detector including a transistor sensitive to electromagnetic radiation;

second means for biasing said transistors; and

5 third means for detecting an output from each of said biased detectors in response to electromagnetic radiation.

10. The invention of Claim 9 wherein each of said transistors has a body, a gate terminal, a source terminal and a drain terminal.

11. The invention of Claim 10 wherein the body of each transistor is configured to float.

12. The invention of Claim 11 wherein each transistor is a complementary metal-oxide semiconductor transistor.

13. The invention of Claim 12 wherein each transistor is an n-channel complementary metal-oxide semiconductor transistor.

14. The invention of Claim 13 wherein said the transistor is formed on top of an insulating substrate which is transparent to visible light.

15. The invention of Claim 9 wherein said second means includes means for selectively activating said transistors.

16. The invention of Claim 15 wherein said means for selectively activating includes means for sequentially activating said transistors.

17. The invention of Claim 15 wherein said means for selectively activating includes means for randomly activating said transistors.

18. The invention of Claim 9 wherein said third means includes a differential amplifier.

19. The invention of Claim 18 wherein said amplifier is a current sense differential amplifier.

20. The invention of Claim 19 wherein said third means further includes means for supplying a reference voltage to said current sense differential amplifier.

21. The invention of Claim 9 wherein said electromagnetic radiation is light.

22. The invention of Claim 21 wherein said light is in the visible portion of the electromagnetic spectrum.

23. The invention of Claim 22 further including means for mounting a first color filter between said light and one or more of a first set of said detectors.

24. The invention of Claim 23 further including means for mounting a second color filter between said light and one or more of a second set of said detectors.

25. The invention of Claim 24 further including means for mounting a third color filter between said light and one or more of a third set of said detectors.

26. The invention of Claim 22 further including a grating for directing light of a first color to one or more of a first set of said detectors.

27. The invention of Claim 26 wherein said grating is adapted to direct light of a second color to one or more of a second set of said detectors.

28. The invention of Claim 27 wherein said grating is adapted to direct light of a third color to one or more of a third set of said detectors.

29. An imager comprising:

first means for detecting input illumination, said first means including an array of detectors, each detector including an n-channel complementary metal-oxide semiconductor transistor sensitive to electromagnetic radiation, each of said transistors
5 having a body configured to float;

second means for biasing, selectively and sequentially activating said transistors; and

third means for detecting an output from each of said biased detectors in response to electromagnetic radiation, said third means including a differential amplifier.

30. The invention of Claim 29 wherein said amplifier is a current sense differential amplifier.

31. The invention of Claim 30 wherein said third means further includes means for supplying a reference voltage to said current sense differential amplifier.

32. The invention of Claim 29 wherein said electromagnetic radiation is light.

33. The invention of Claim 32 wherein said light is in the visible portion of the electromagnetic spectrum.

34. The invention of Claim 33 further including means for mounting a first color filter between said light and one or more of a first set of said detectors.

35. The invention of Claim 34 further including means for mounting a second color filter between said light and one or more of a second set of said detectors.

36. The invention of Claim 35 further including means for mounting a third color filter between said light and one or more of a third set of said detectors.

37. The invention of Claim 33 further including a grating for directing light of a first color to one or more of a first set of said detectors.

38. The invention of Claim 37 wherein said grating is adapted to direct light of a second color to one or more of a second set of said detectors.

39. The invention of Claim 38 wherein said grating is adapted to direct light of a third color to one or more of a third set of said detectors.